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005/010

MAY 14 2010

Serial No.: 10/751,099
Examiner: Kyung H. Shin

AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

1(Currently Amended). A data link layer processor comprising:

~~a plurality of media access controllers, wherein each media access controller is operatively coupled to a physical layer interface; and characterized such that a traffic shaper is operatively coupled to said media access controllers for discarding one or more frames from a network processor that exceed one or more bandwidth parameters prior to transmission to the media access controllers.~~

one or more media access controllers (MACs), wherein each MAC is operatively coupled to a physical layer interface, each of said one or more MACs includes a MAC preprocessor and a MAC postprocessor, said MAC preprocessor including a traffic policer, said traffic policer adapted to execute an ingress traffic policy and frame discard, said traffic policer utilizing a three color marker algorithm to identify frames for discard, wherein the MAC postprocessor includes a traffic shaper adapted to perform bandwidth-based flow control for the egress traffic received by at least one of said MACs, wherein the traffic shaper regulates output bandwidth of the MAC postprocessor using a token bucket algorithm in conjunction with one or more buckets each associated with a respective one of a plurality of flow classes, and wherein tokens allotted to each bucket and tracked using a first counter represent a capacity for each one of said flow classes; and

a statistics acquisition module, operatively coupled to the one or more MACs, for compiling statistics on each of the plurality of MACs.

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2 (Currently Amended). A switching device comprising:

a plurality of physical layer interfaces for transmitting frames to a communication network;

a network processor for routing the frames towards the physical layer interfaces;
and

a traffic shaper;

characterized by a plurality of network access modules, wherein each of said network access modules comprises a data link layer processor, wherein each data link layer processor comprises: a plurality of media access controllers, wherein each media access controller is operatively coupled to a physical layer interface; each of said plurality of MACs includes a MAC preprocessor and a MAC postprocessor, said MAC preprocessor including a traffic policer, said traffic policer adapted to execute an ingress traffic policy and frame discard, said traffic policer utilizing a three color marker (TCM) algorithm to identify frames for discard, wherein the MAC postprocessor includes a traffic shaper adapted to perform bandwidth-based flow control for the egress traffic received by at least one of said plurality of MACs, wherein the traffic shaper regulates output bandwidth of the MAC postprocessor using a token bucket algorithm in conjunction with one or more buckets each associated with a respective one of a plurality of flow classes ~~and characterized in that said traffic shaper is operatively coupled to said media access controllers, for discarding one or more frames from the network processor that exceed one or more bandwidth parameters prior to transmission to the media access controllers.~~

3 (Canceled).

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4 (Currently Amended). The switching device of claim 3 2, wherein the TCM algorithm is selected from the group consisting of: single rate TCM, two rate TCM, and a combination thereof.

5 (Currently Amended). The switching device of claim 2, wherein the traffic ~~shaper~~ policer comprises:

- a meter module for determining a flow rate associated with the frames received from the network processor; and
- a discard control logic for selectively discarding said one or more frames based upon the flow rate and the one or more bandwidth parameters.

6 (Currently Amended). The switching device of claim 5, wherein the traffic ~~shaper~~ policer further comprises a marker module for marking the plurality of frames in accordance with a the TCM algorithm.

7 (Canceled)

8 (Currently Amended). The switching device of claim 2, wherein the traffic ~~shaper~~ policer comprises a flow search engine for classifying frames from the network processor based upon one or more properties associated with the frames.

9 (Original). The switching device of claim 8, wherein the flow search engine comprises a content addressable memory (CAM).

10 (Previously Presented). The switching device of claim 9, wherein the CAM associated with each of the plurality of data link layer processors consists of QoS rules pertaining to the associated plurality of physical layer interfaces.

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11 (Canceled).

12 (Original). The switching device of claim 2, wherein the switching device is selected from the group consisting of: a router, a multi-layer switching device, and a switch blade.